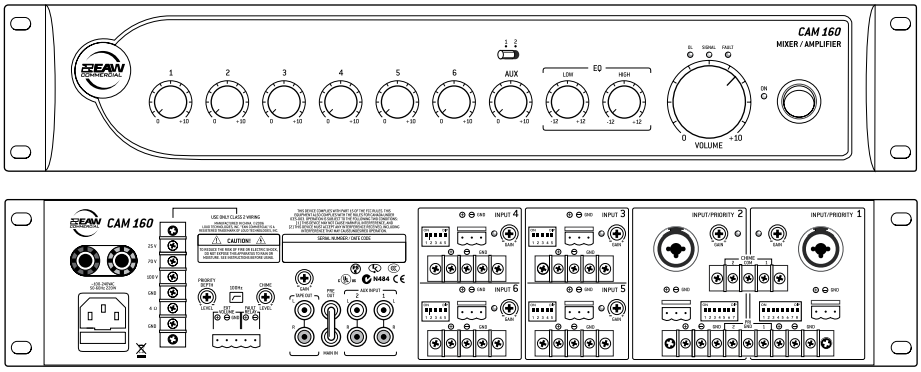
INSTRUCTION MANUAL

CAM160 / CAM80

Integrated Mixer/ Amplifiers



1. IMPORTANT SAFETY PRECAUTIONS—READ THIS FIRST

CAUTION ***AVIS***

RISK OF ELECTRIC SHOCK • DO NOT OPEN
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

ATTENTION: POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE.
AVIS: POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE A LA PLUIE OU A L'HUMIDITE

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'éléctrocution.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

PORTABLE CART WARNING

Carts and stands - The Component should be used only with a cart or stand that is recommended by the manufacturer.
A Component and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the Component and cart combination to overturn.

Part No. 0021209 Rev. C 02/08
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14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.
17. This apparatus has been designed with Class-1 construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
18. This apparatus has been equipped with a single-pole, rocker-style AC mains power switch. This switch is located on the front panel and should remain readily accessible to the user.
19. **WARNING:** Plug the power cord into a power outlet where access to the power cord connector is readily accessible in case power disconnection is required.
20. **ATTENTION:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.
21. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION —Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

WARNING! This equipment has been designed to be installed by qualified professionals only! There are many factors to be considered when installing professional sound reinforcement systems, including mechanical and electrical considerations, as well as acoustic coverage and performance. EAW Commercial strongly recommends that this equipment be installed only by a professional sound installer or contractor.

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2. INTRODUCTION

The CAM160 and CAM80 mixer amplifiers are designed for continuous duty in speech, music, paging and sound reinforcement applications in churches, schools, offices, arenas, hotel meeting rooms, convention centers, recreation facilities and other venues demanding high performance, flexible features and rugged dependability.

The CAM160 has a 160 watt power amplifier, and the CAM80 has 80 watts. Apart from this difference in power output, the two models are identical in details and operation.

Six combination mic/line inputs are actively balanced, with individual sensitivity controls and selection switches for line-level input, mic-level input, mic-level input with 24 VDC phantom power, 10 dB pad, and high-pass filtering.

Input 1 and 2 have automatic ducking and manual priority over the other inputs. They also have a manual selectable chime, and chime volume. The auto ducking has selectable ducking threshold and adjustable depth control.

The stereo unbalanced RCA aux inputs are internally summed to mono, have a front panel aux selector switch and level control.

An unbalanced signal-processing loop is provided on the rear panel with RCA connectors.

Output modes include 4 ohm constant impedance, and constant voltage 25 V, 70 V and 100 V. The output stage is fully protected against permanent damage caused by overloading, shorts, and extreme temperatures.

The universal power supply will operate from 100 VAC to 240 VAC, 50/60Hz, supplied by a detachable IEC power cord.

Rear panel terminals are provided for connecting an external 24 VDC backup battery, with automatic switching if the AC mains fails.

The front panel provides level controls for each mic/line input, aux, and master volume, as well as bass and treble controls. Status LEDs indicate signal present, signal overload, fault and power on.

FEATURES

- Two mic/line Inputs with combination 1/4-inch/XLR connectors, euro connectors, screw terminals
- Four mic/line Inputs with euro connectors and screw terminals
- Each input is switch-configurable for mic or line, phantom power on or off, high pass filter on or off, and 10 dB pad in or out
- Inputs 1 and 2 have priority terminals for manual ducking of other inputs, as well as automatic ducking, with selectable ducking threshold and priority depth control
- Inputs 1 and 2 have chime terminals for playing an internal announcement chime, with level adjustment
- Input 1 has a selectable input transformer
- Two stereo auxiliary RCA inputs
- Signal processing loop (RCA)
- Tape output (RCA) with level control
- Trim control and level-setting LED on inputs 1 to 6
- Front panel EQ adjustment of bass and treble
- Front panel level adjustment of each input, aux 1 and 2, and a master level control
- Front panel overload, signal, fault and power on LEDs
- Front panel power switch
- External volume control (with user-supplied 10k pot)
- External fault relay terminals
- CAM160: 160 watt rms, convection cooled
- CAM80: 80 watt rms, convection cooled
- 4 ohm - 25 V - 70 V - 100 V screw terminal outputs
- Global high-pass filter
- Universal power supply, 100 VAC–240 VAC, 50–60 Hz
- Automatic switching to 24 VDC backup power input
- 2 RU rack-mountable

APPLICATIONS

- Foreground/background music systems
- Paging systems
- Continuous-duty applications
- Sound reinforcement systems

3. FRONT PANEL FEATURES

1. INPUT LEVEL

These controls allow you to individually adjust the volume level of each input. We recommend that you turn down the level controls of any unused or little-used inputs. Unity gain is straight up.

The main output program is a mix of all inputs playing, and either Aux 1 or Aux 2.

2. AUX 1/AUX 2 SELECTOR

This high-quality toggle switch selects either Aux 1 or Aux 2 to be the auxiliary input passed through to the amplifier section. The Aux 1 and 2 inputs on the rear panel are unblanced RCA line-level connections.

The Aux master level control below the selector switch increases or decreases the signal level of the selected Aux input to the amplifier.

3. EQ-LOW

Turn this clockwise to boost the level of the low-frequency range below 100 Hz. Turn it counter-clockwise to cut the level. In the detented center position, there is no change in level. The maximum boost and cut is 12 dB.

4. EQ-HIGH

Turn this clockwise to boost the level of the high-frequency range above 10 kHz. Turn it counter-clockwise to cut the level. In the detented center position, there is no change in level. The maximum boost and cut is 12 dB.

5. MASTER VOLUME

Use this volume control to adjust the sound output level to your speakers. Adjust the master level and the input levels to average settings, not too high and not too low. For example, if you find you have to turn the master volume up high, then the input level controls might be set too low. If the master volume becomes loud after a small rotation, then the input level controls might be set too high.

6. STATUS LEDS

These LEDs show:

OVERLOAD (RED)

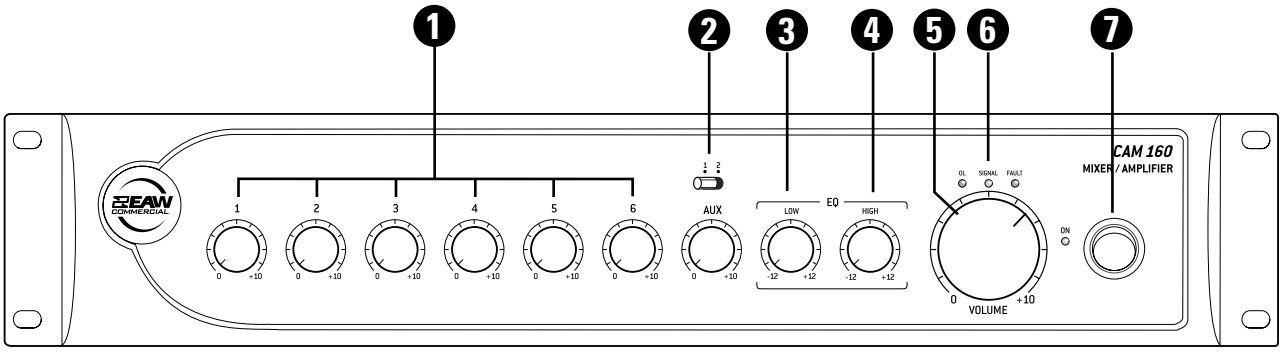
SIGNAL PRESENT (AMBER)

FAULT (RED)

POWER ON (GREEN)

7. POWER

Use this switch to turn the unit on or off. The power is on when the top of the switch is pressed, and off when the bottom is pressed. Turn it off if you are not using the unit for long periods of time.



4. REAR PANEL FEATURES

INPUTS 1 AND 2

Inputs 1 and 2 have identical connections and controls, with the exception that Input 1 has an extra DIP switch to select an internal transformer.

INPUT CONNECTORS

Inputs 1 and 2 each have four different styles of input connections. Choose one which suits your system the best:

8. Combination XLR/TRS connector. This can accept a male balanced XLR connector, a balanced TRS or unbalanced TS 1/4" connector.

9. Phoenix (Euroblock) connector. This three-pin connector accepts the positive, negative and ground terminals of a balanced audio line. It accepts a push-in connector for easy installation.

10. Terminal strip. This three-terminal connector accepts the positive, negative and ground terminals of a balanced audio line. Secure the connections with the screws.

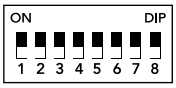
All inputs are designed to accept balanced or unbalanced microphone-level signals, or may be configured to accept line-level signals by means of the DIP-switch (see below).

11. GAIN pot and LED

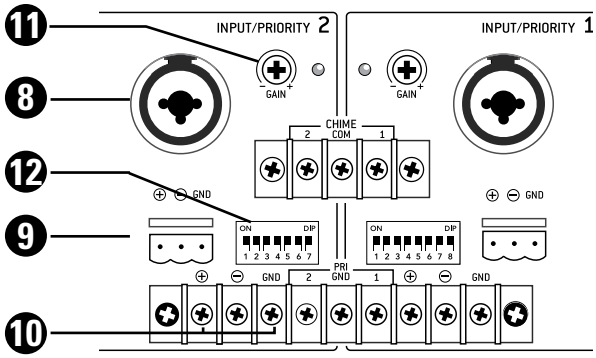
This screwdriver-adjustable rotary potentiometer acts as a trim control, and a red indicator LED displays the nominal input level. With normal source material playing, adjust the pot until the LED lights only occasionally during the loudest moments of your program. (The LED will light 3 dB before clipping.)

12. DIP switches

Input 1 has an eight-pole DIP-switch from which the inputs (all four types) can be configured. Input 2 has a seven pole DIP-switch, identical to the first seven poles of Input 1.



DIP #	Purpose	DOWN	UP
1	Mic/Line	Line Level	Mic Level
2	Mic/Line	Line Level	Mic Level
3	24 V Phantom	OFF	Enabled
4	High Pass Filter	Enabled	OFF
5	-10 dB Pad Enable	OFF	Enabled
6	Ducking Threshold	OFF	see table
7	Ducking Threshold	OFF	see table
8	Transformer Enable (input 1 only)	OFF	Enabled



DIP switch details:

1. Mic/line (line-level is default). Select UP if using a microphone, or DOWN if it is a line-level input such as from a CD or DVD player. **Note:** You must set DIP 2 to the same setting as DIP 1.
2. Mic/Line. Set this to whatever DIP 1 is set to. See above for details.
3. Phantom Power. Select UP if using a microphone that requires phantom power, otherwise, it is important to keep this DOWN.
4. High-pass filter enable. The default position is enabled (DOWN). This rolls off the low frequencies below 120 Hz, at a rate of 12 dB per octave. Use this to reduce low frequencies, such as from low bass notes, microphone handling and stage noise. It is useful when using smaller speakers that do not reproduce the low frequencies well.
5. 10 dB pad enable. Select UP to reduce the input level by 10 dB.

6. and 7. Ducking Threshold Select. Use these two in combination to select the threshold when ducking occurs. See Ducking Threshold and table below.

8. Transformer enable. Select UP to engage the in-line audio transformer (input 1 only).

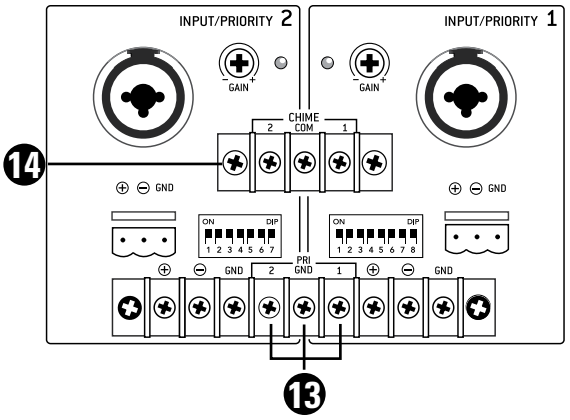
Ducking Threshold

DIP-switches 6 and 7 are used in combination with each other to determine the threshold that the signals from input 1 or 2 must cross to initiate automatic ducking of the other inputs. This table shows the combinations:

DIP 6	DIP 7	RESULT
DOWN	DOWN	No Ducking
UP	DOWN	- 10 dB Duck threshold
DOWN	UP	- 20 dB Duck threshold
UP	UP	- 30 dB Duck threshold

Ducking will take place within 300 mS of detecting that an input signal has crossed the ducking threshold. This delay also applies to the manual activation of the Priority circuit by the use of external contact closures.

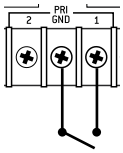
When the signal that initiated the ducking stops, or manual activation has ceased, there will be a one second timeout period to make sure it is completely over. When it is over, the other inputs will ramp up to their original volume over the next 0.5 seconds.



13.Priority Functions

Priority means that you can manually duck the other channels using an external switch, and play only input 1 or input 2.

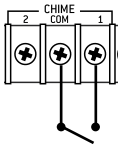
Priority functions can be initiated by a user-supplied, normally open, dry contact closure switch (or switches) connected to the terminal strip (GND, Priority 1, Priority 2).



Connecting one leg of the switch to the GND screw and the other side to either PRI 1 or PRI 2 prepares the circuit. Closing the switch actuates the specific priority, allowing input 1 or 2 to play

14.Chime Function

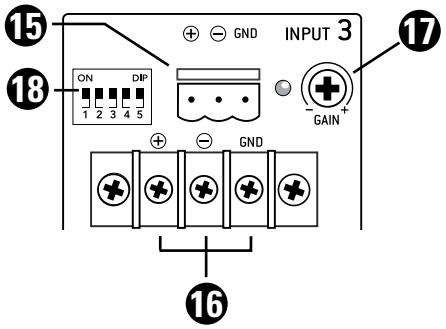
Chime functions can also be initiated by means of user-supplied, normally open, dry contact closure switch (or switches) connected to the terminal strip (COM, Chime 1, Chime 2).



Connecting one leg of the switch to the COM screw and the other side to Chime 1 or Chime 2 prepares the circuit. Closing the switch actuates the Chime.

INPUTS 3, 4, 5, 6

Inputs 3, 4, 5 and 6 have identical connections and controls. (Input 3 is shown here.)



INPUT CONNECTORS

Inputs 3-6 each have two different styles of input connections. Choose one which suits your system the best:

15. **Phoenix (Euroblock) connector.** This three-pin connector accepts the positive, negative and ground terminals of a balanced audio line. It accepts push-in connectors for easy installation.

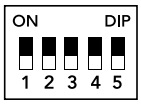
16. **Terminal strip.** This three-terminal connector accepts the positive, negative and ground terminals of a balanced audio line. Secure the connections with the screws.

All inputs are designed to accept balanced or unbalanced microphone-level signals, or may be configured to accept line-level signals by means of DIP-switches 1 and 2 (explained below).

17. GAIN pot and LED

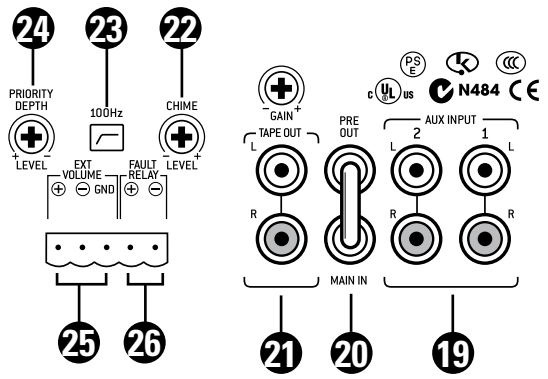
This screwdriver-adjustable rotary potentiometer acts as a trim control, and a red indicator LED displays the nominal input level. With normal source material playing, adjust the pot until the LED lights only occaisionally during the loudest moments of your program. (The LED will light 3 dB before clipping.)

18. DIP switches



Each input 3-6 has a five-pole DIP-switch from which the inputs (both types) can be configured. (These are identical to the first five switches of inputs 1 and 2 described on page 5.)

DIP #	Purpose	DOWN	UP
1	Mic/Line	Line Level	Mic Level
2	Mic/Line	Line Level	Mic Level
3	24 V Phantom	OFF	Enabled
4	High Pass Filter	Enabled	OFF
5	Pad Enable	OFF	Enabled



19. Auxiliary Inputs 1 and 2

Unbalanced, auxiliary signals enter the amplifier via 2 pairs of RCA connectors. Attenuation is controlled by the AUX potentiometer on the front panel of the amplifier.

Select either Aux 1 or Aux 2 using the front panel selector switch (item 2 on page 4). The selected Aux input is routed to the mixing section of the amplifier.

20. Processing Loop

External processing is possible by using the Pre-out/Amp-in processing loop. The PRE-OUT RCA connector is pre-amplifier, and represents the same mix as the amplified output, adjustable by the EQ and the Volume controls. The amplifier ships with a high quality "U" jumper installed.

To connect an external mono processor, first pull out the "U" jumper, and connect the PRE-OUT to the input of your external processor. Connect the output of your external processor to the MAIN IN. Use high quality RCA patch cords, as short as possible to do the job.

There will be no output if the U jumper is missing, so check this as a troubleshooting measure.

21.Tape Outputs and Gain

The Tape-out output can be used to drive an external recording device. The signal exiting this stacked RCA pair is the same as the audio mix, pre-master volume control, and can be used to drive a second amplifier at line level. It's output level is controlled by a potentiometer just above the RCA jacks.

22. Chime Level Control

This potentiometer controls the chime level when it is actuated (via contact closure at the chime barrier strip). Adjusting the potentiometer effects the chime level passed on to the amplifier section. It has a range of ± 10 dB.

23. Low Cut Filter

Press this button in to engage the low-cut filter on the output of the amplifier. It is fixed at 100 Hz with a 12 dB slope per octave, and it serves to minimize transformer saturation in constant voltage systems. Frequencies below 100 Hz are attenuated at a rate of 12 dB per octave.

24. Priority Depth Level

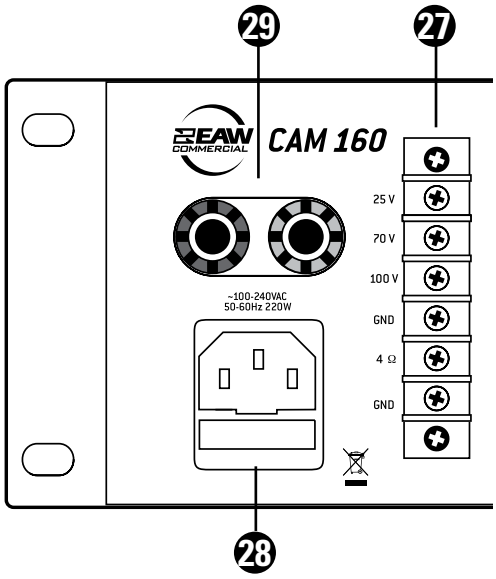
When a priority signal is detected, this potentiometer controls the depth (attenuation) of signals that are being "ducked." In the fully CW position, no attenuation will occur. In the fully CCW position, all signals that are not a priority signal are completly muted.

25. External Volume Control

This terminal is provided for remote volume control. If you connect a (user-supplied linear-taper 10K pot), you can remotely control the volume of the amplifier in the same way that the front panel volume control does.

26. Fault Relay

If a fault is detected in the amplifier section, the positive terminal of this external connector is energized. This external connector can be used to connect to an external device to initiate a "fault" action as dictated by the user. Additionally, the "fault" LED on the front of the amplifier will light.



27. Output Connectors

This is a five-position barrier strip for connection of speaker loads. Each terminal accepts bare wire from 22 AWG to 10 AWG, or spade lugs sized for the same range of conductors.

Terminals are provided for 4 ohm low-impedance loads or 25, 70 and 100 Volt high-impedance loads.

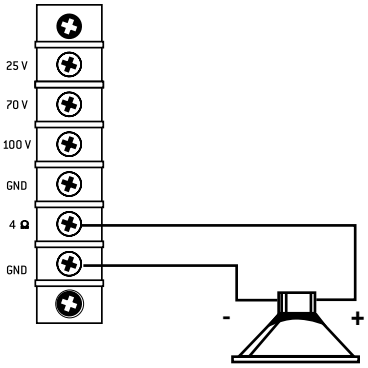
All outputs with the exception of the 4 ohm output are transformer isolated.

LOW IMPEDANCE

To connect a speaker directly, connect the lower GND terminal to the negative post of your speaker, and connect the 4 ohm terminal to the positive post.

Make sure that your average speaker impedance is not less than 4 ohm, as this may overload the amplifier.

The speaker output connectors are screw terminals. Use 16 or 18 gauge wire for connecting the amplifier outputs to the speakers. Strip the wire back about 3/8" inch, loosen the screw enough to loop the wire around the shaft of the screw (clockwise), and tighten down the screw with a screwdriver.



HIGH IMPEDANCE

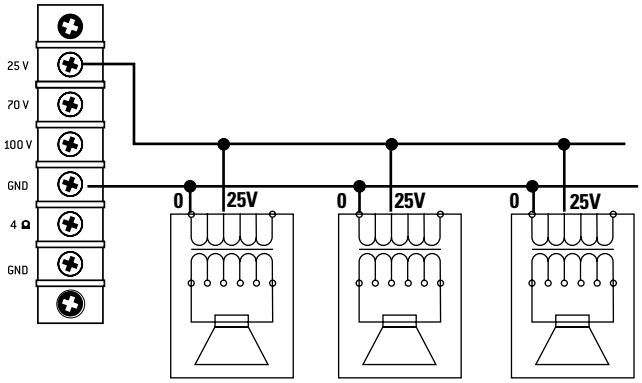
If you are using a constant-voltage distributed speaker system, connect either the 25 V, 70 V, or 100 V output terminal to the "+" side of the speaker system, and connect the upper "GND" output terminal to the "–" side of the speaker system.

The voltage of your speakers must equal the voltage of the amplifier's output terminal (25 V, 70 V, or 100 V).

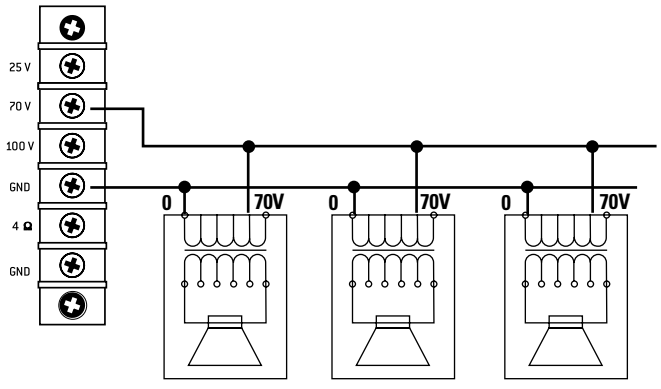
CAUTION: Make sure that you do not overload the amplifier. This may cause overheating to the amplifier, and possible damage to your speakers. To avoid overloading, make sure that the taps on the speakers add up to no more than 80% of the rated power of the amplifier being used (CAM160: 128 watts, CAM80: 64 watts). For example, for the CAM160, you could use a maximum of 12 speakers with 10 watt taps (12x10 = 120 watts). For further protection, use these figures as the maximum power sum of all the speaker taps: CAM160: 100 watts, CAM80 50 watts.

CAUTION: To prevent the risk of electric shock, never touch the bare wires coming from the OUTPUT TERMINALS of the amplifier when it is switched on. When the connections have been made, insulate the 25 V, 70 V, and 100 V terminals of the amplifier using the protective cover supplied.

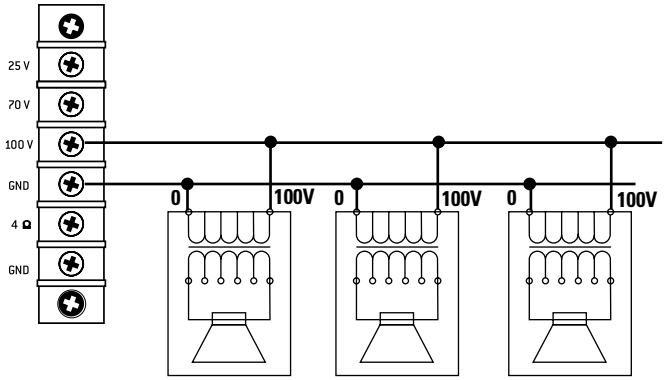
GND and 25V are used to connect a string of 25V speakers. Use Class II wiring:



GND and 70V are used to connect 70V speakers. Use Class II wiring:



GND and 100V are used to connect 100V speakers
Use Class II wiring:



28. AC Power

The CAM160 and CAM80 are fitted with a detachable IEC socket for AC input.

Each unit is fitted with a universal power supply, allowing it to operate from any AC mains supply from 100 to 240 VAC, 50-60 Hz.

A 6-foot U-Ground to IEC power cable is supplied.

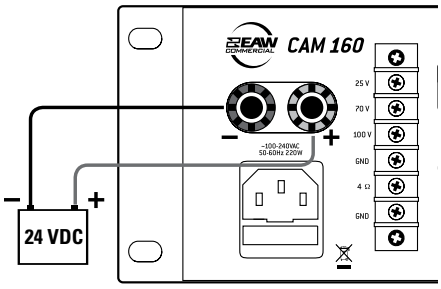
An integrated, removable, AC input fuse is fitted just below the IEC socket. To remove or inspect the fuse, first unplug the power cord from the AC socket. Then use a small screwdriver to gently pry open the rectangular fuse holder and inspect or replace the fuse. Replacement fuses must be of the same rating as the original fuse.

Low voltage fuses are located internally.

29. DC Power

These terminals allow the amplifier to be powered using 24 VDC emergency power supplies.

The unit will automatically switch to external DC battery power if your local AC power fails. You will need to connect an external 24 Volt battery to the DC battery terminals.



Make absolutely sure the positive post of your battery connects to the positive terminal, and the negative post connects to the negative terminal. To minimize the voltage drop across the wires and prevent overheating, use at least 14 AWG insulated wire.

The unit seamlessly switches to the backup supply if there's a power loss, allowing safety instructions and emergency communications to continue. When both AC power and 24 VDC power are connected, the AC power is used and no current is drawn from the DC supply.

Note: The unit will not charge the battery, so you should have a dedicated charging system. Note also, that when running on DC power, the output is lower than when running on AC power.

5. THERMAL CONSIDERATIONS

The power amplifier within the unit is convection cooled rather than fan cooled. Heat is drawn away from the amplifier by the heatsink and radiated through the cooling vents in the top and bottom cover.

When installing, be sure to allow sufficient air space around the top and rear of the amplifier to allow adequate cooling for the heatsink. Leave at least one rack space above and below, and at least 6 inches behind the chassis to allow proper ventilation.

If the amplifier should overheat, a thermal switch turns off the power amplifier, allowing the heatsinks to cool down. Once the amplifier has cooled to a safe operating temperature, the thermal switch resets and reactivates the amplifier. If this should occur, identify the cause of the problem and take corrective action. For example:

- Provide better ventilation,
- Install a fan in the rack to move more air,
- Make sure the amplifier is not overloaded with too low of a load impedance or by a short circuit on the speaker line.

RACK MOUNTING

The front panel rack holes allows the unit to be fitted within a standard 19" rack.

The unit still needs to be supported underneath, due to the weight of the power and output transformers.

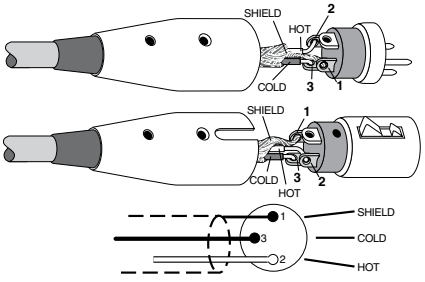
6. CONNECTIONS

Inputs 1 and 2 use a dual-purpose input connector which can accept XLR and 1/4" TRS and TS plugs.

The AUX 1 and 2 inputs use unbalanced RCA connectors, as does the MAIN IN and PREAMP OUT.

XLR Connectors

Inputs 1 and 2 can accept 3-pin male XLR connectors, wired as follows:



XLR Balanced Wiring

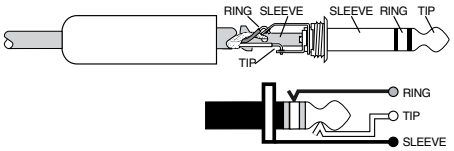
Pin 1 = Shield

Pin 2 = Hot (+)

Pin 3 = Cold (–)

1/4" TRS Phone Plugs and Jacks

"TRS" stands for Tip-Ring-Sleeve, the three connections available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals and stereo headphones:



1/4" TRS Balanced Mono wiring:

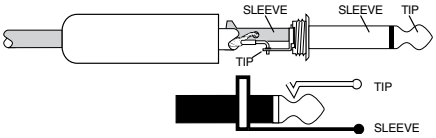
Sleeve = Shield

Tip = Hot (+)

Ring = Cold (–)

1/4" TS Phone Plugs and Jacks

"TS" stands for Tip-Sleeve, the two connections available on a mono 1/4" phone jack or plug. They are used for unbalanced signals.



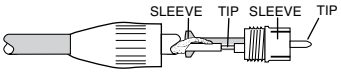
1/4" TS Unbalanced Wiring:

Sleeve = Shield

Tip = Hot (+)

RCA Plugs and Jacks

RCA-type plugs (also known as phono plugs) and jacks are often used in home stereo and video equipment and in many other applications. They are unbalanced and electrically equivalent to a 1/4" TS phone plug.



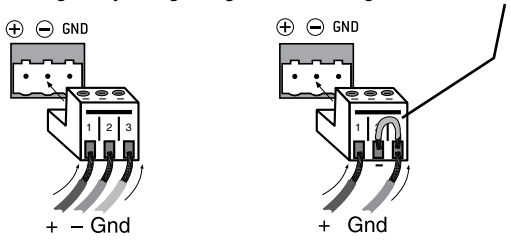
RCA Unbalanced Wiring:

Sleeve = Shield

Tip = Hot

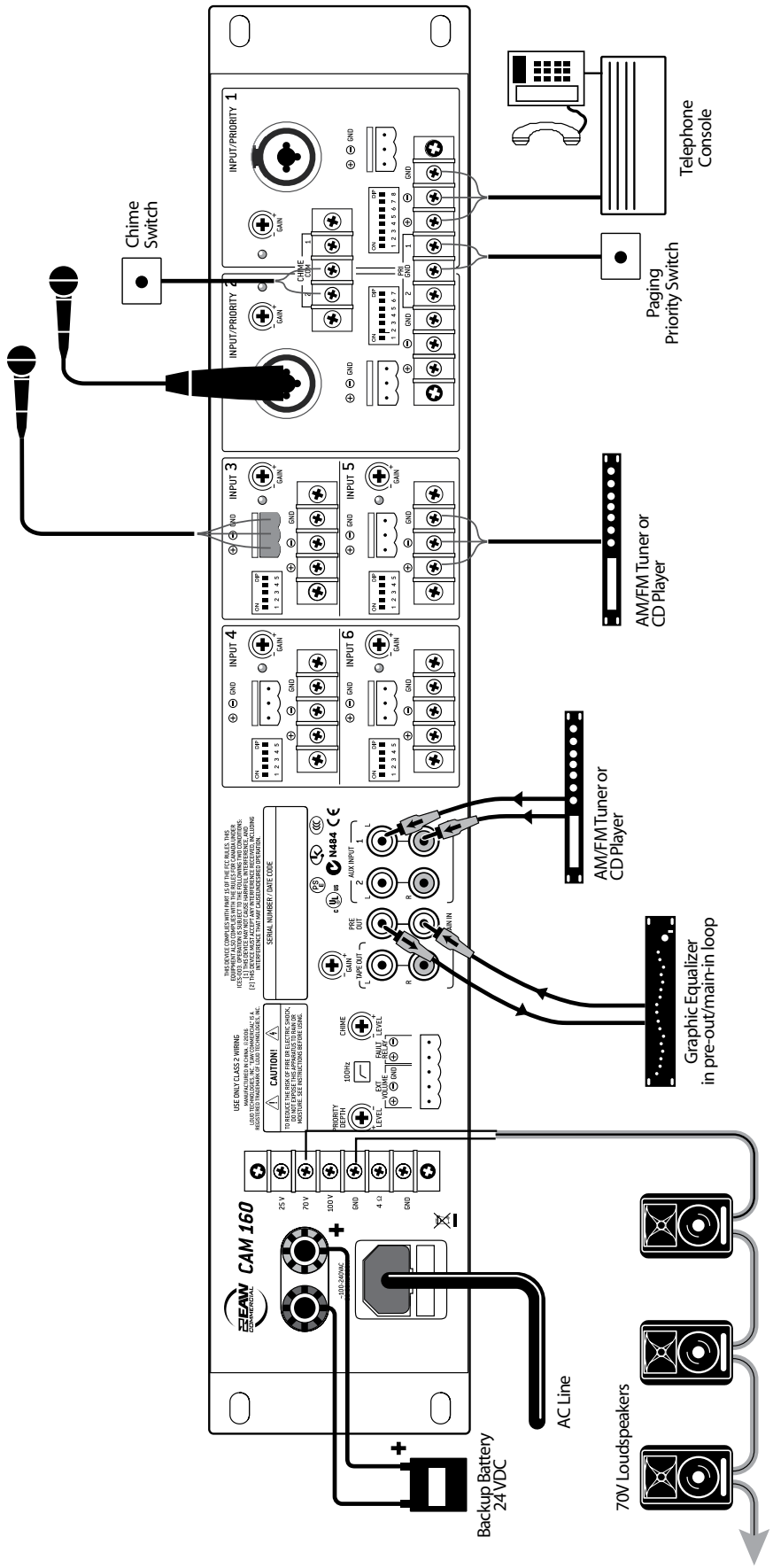
Phoenix-type Connectors

These connectors use small screws to clamp the wires in place. They can be balanced, using three conductor wiring, or unbalanced using two-conductor wiring and a small wiring link joining the ground and negative connector.



Balanced Unbalanced

7. TYPICAL HOOKUP DIAGRAM



8. SPECIFICATIONS

Audio Inputs

Input Type	Balanced Differential, Unbalanced
Input Impedance	30 kΩ (Bal, Line-In)
	2.7 kΩ (Bal, Mic-In)
	15 kΩ (UnBal, RCA-In)
Output Impedance:	1 kΩ (UnBal, RCA-Out) (At Direct Outputs)
Input Gain Trim Range:	-3 dB to 40 dB (Mic Input)
	-23 dB to 20 dB (Line Input)
Maximum Input Level:	+19 dBV
Nominal Input Level:	0 dBV
Dynamic Range	105 dB
Phantom Power	24 V
Frequency Response:	20 Hz - 20 kHz + 1 dB
Total Harmonic Distortion	
(Inputs 1-6, and Aux):	> 0.1% 20 Hz - 20 kHz @ 0 dBV
EQ	Butterworth, ±12 dB fixed at 100 Hz
	±12 dB fixed at 10 kHz

Audio Outputs

Output Type:	Unbalanced / Impedance Balanced
Output Impedance:	150 Ω / 300 Ω
Nominal Output Level (Both Preamp & Tape Outputs):	
	0 dBV
Dynamic Range:	95 dBV
Frequency Response (Tape Output):	
	20 Hz - 20 kHz +/- 1 dB
Total Harmonic Distortion	
(Preamp Out):	> 0.04% 20 Hz - 20 kHz @ 0 dBV

Power Amplifier

CAM80 Output Power at 1% THD @ 1 kHz:	
	80 W @ 100 V
	80 W @ 70 V
	80 W @ 25 V
	80 W @ 4 Ω
CAM160 Output Power at 1% THD @ 1 kHz:	
	160 W @ 100V
	160 W @ 70V
	160 W @ 25 V
	160 W @ 4 Ω
Total Harmonic Distortion:	< 0.15%
	(100 V, 70 V, 25 V & 4 Ω modes)
Power Bandwidth (at -1 dBr, all modes):	
	40 Hz - 15 kHz (+0 dB –3 dB)
Signal to Noise ratio:	95 dBV
Protection:	Heatsink Overtemp, DC offset, Short Circuit

AC Line Input Power

~100 VAC to 240VAC 50/60Hz	110 W (CAM80)
	220 W (CAM160)
AC Input Low Voltage Detector threshold	
	70% of Nominal Line

Physical Specifications

Height (Excluding Feet):	3.46 inches	(88 mm)
Width (Overall):	19.00 inches	(483 mm)
Depth (Rear side of Rack ear to Rear panel, excluding connectors):		
	15.00 inches	(381 mm)
CAM80 Weight:		
Net	18.8 lbs.	(8.4 kg)
Shipping	24 lbs.	(10.7 kg)
CAM160 Weight:		
Net	20.8 lbs.	(9.3 kg)
Shipping	26 lbs.	(11.6 kg)
Operating Temperature Range		
	-10°C to 45°C, 14°F to 113°F	

DISCLAIMER

EAW Commercial continually engages in research related to product improvement, new materials, and production methods. Design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current EAW Commercial product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.

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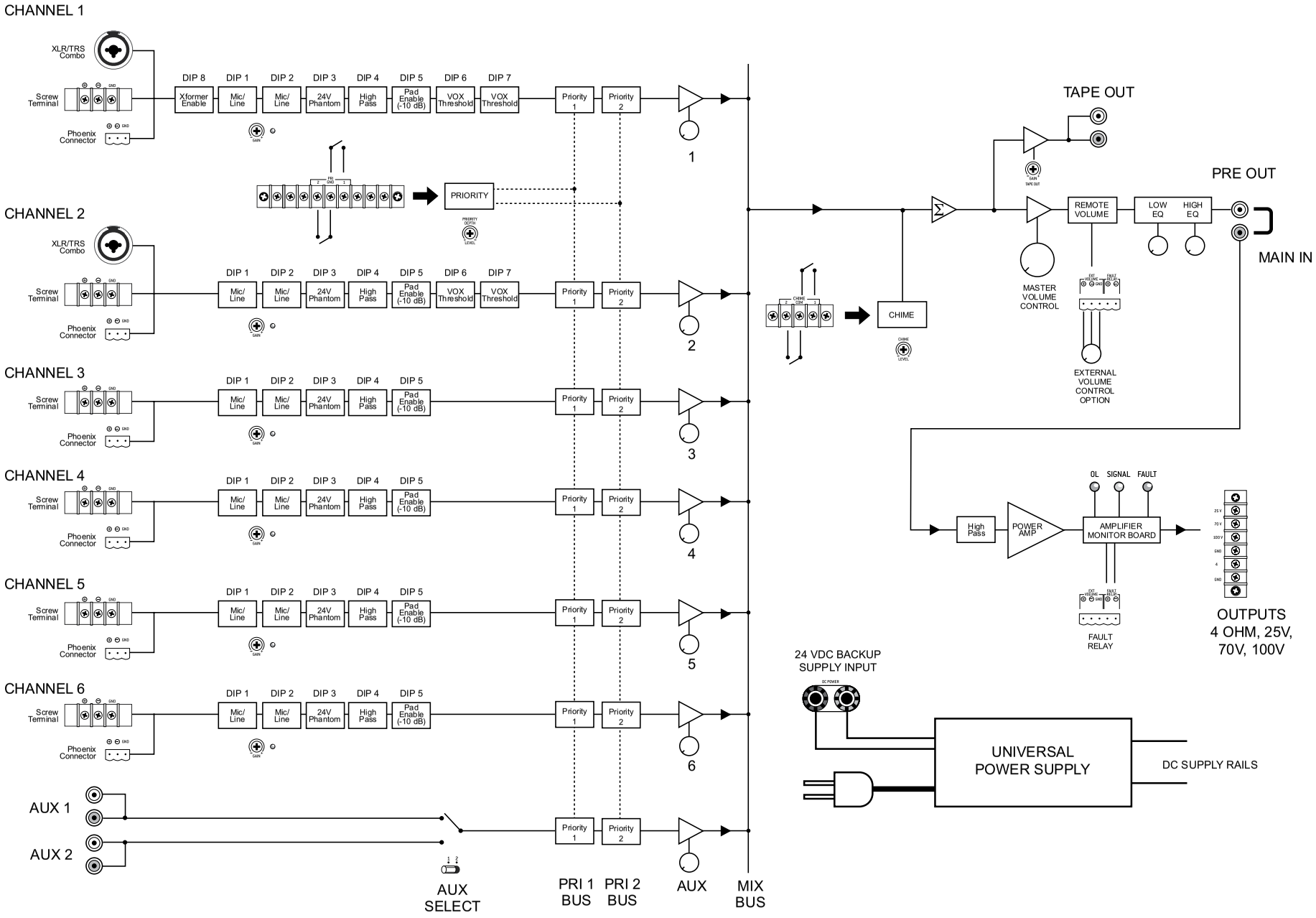
BLOCK DIAGRAM



9. SERVICE INFORMATION

In the event that your CAM160 or CAM80 should require servicing, please follow these instructions:

1. Call EAW Commercial Tech Support at 1-800-992-5013, 7 am to 5 pm PST (Monday-Friday), to verify the problem and obtain a Return Authorization (RA) Number. Be sure to have the serial number of the unit when you call. You must have a Return Authorization Number in order to obtain warranty service at an authorized service center. You can also contact EAW Commercial through our website at: www.eaw.com/ContactUs
2. Pack the unit in its original packaging. THIS IS VERY IMPORTANT. LOUD Technologies is not responsible for any damage that occurs during shipping due to non-conventional packaging. Original packaging helps to minimize the possibility of shipping damage.
3. Include a legible note stating your name, (no P.O. boxes), daytime phone number, Return Authorization Number, and a detailed description of the problem, including how we can duplicate it.
4. Write the Return Authorization Number in BIG BOLD PRINT on the top of the box.
5. Tech Support will tell you where to ship the unit when you call for an RA Number. We suggest insurance for all forms of cartage.

10. EAW COMMERCIAL WARRANTY

Warranty: LOUD Technologies Inc. requires its authorized EAW Commercial distributors to abide by the following warranty terms for all EAW Commercial brand products (all dates are from the date of delivery from an Authorized EAW Commercial Distributor to the end user/installation site): Loudspeakers – 5 years; Active Electronics – 5 years; Accessories – 2 years.

What Is Covered: Defects in workmanship and materials and against malfunctions. EAW Commercial distributors must remedy all such defects and malfunctions without charge for parts or labor if the warranty applies. Final determination of warranty coverage lies solely with each authorized EAW Commercial distributor.

What Is Not Covered: This warranty does not extend to damage or malfunctions resulting from, but not limited to, shipment, improper installation, misuse, neglect, abuse, normal wear, accident, or to any product on which the serial number has been modified or removed. Exterior defects in or damage to the exterior appearance are specifically excluded from this warranty. EAW Commercial distributors shall not be liable for incidental or consequential damages resulting from the use of EAW Commercial products. Repairs and/or modifications by other than an Authorized EAW Commercial Distributor automatically voids this warranty.

EAW Commercial A LOUD Technologies Inc. Company

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